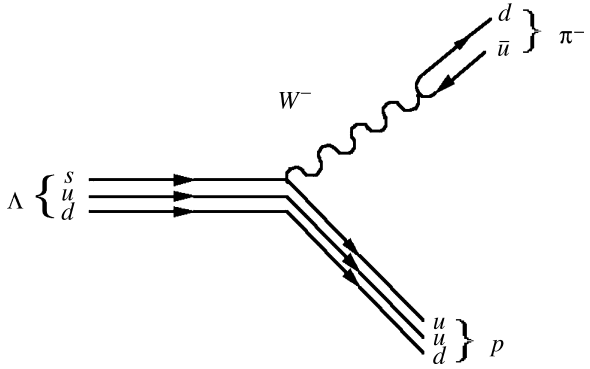
6.3 The Feynman diagram is



The amplitude has two factors of the weak coupling g_{W} and one W propagator carrying a momentum q, i.e.

$$\text{amplitude} \propto \frac{g_{\mathrm{W}}^2}{q^2c^2 - M_W^2c^4} \propto \frac{g_{\mathrm{W}}^2}{M_W^2},$$

because $qc \approx M_\Lambda c^2 \ll M_W c^2$. Now, $\Gamma(\Lambda \to p\pi^-) \propto (\text{amplitude})^2 \propto g_{\mathrm{W}}^4/M_W^4$ and so doubling g_{W} and reducing M_W by a factor of four will increase the rate by a factor $[2^4]/[(1/4)^4] = 4096$.